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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/520,788
Filing Date: January 11, 2005
Appellant(s): DAY, STEPHEN ROLAND

Matthew L. Schneider
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 20 April 2009 appealing from the Office action mailed 20 August 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

GROUNDS OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

The rejection of Claims 3-5, 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Fraivillig (U.S. Patent No. 6,208,031).

The rejection of Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Ladd (U.S. Patent No. 2001/0055458).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,317,906	Baldridge	7-1964
5,193,895	Naruke et al.	3-1993
4,968,895	Leclercq	11-1990
4,761,720	Solow	8-1988
6,208,031	Fraivillig	3-2001

2001/0055458 Ladd 12-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895).

Baldridge discloses a laminated glazing panel and process for the production thereof comprising two glass plies, a plastic ply and one or more lights which are laminated between the glass plies (column 2, lines 16-39, column 3, lines 7-51; see

Figure 1) with the lamination occurring at a temperature of 200°F – 325°F (93.33°C – 162.78°C).

With respect to the limitations of claims 9-11 and 16, Baldridge further disclose indicia on at least one ply (column 3, lines 41-60); a cut-out in the plastic ply to aid successful lamination of larger components in the glazing panel (26; column 3, lines 27-29); multiple plastic plies may be used to laminate the one or more light indicators in the glazing panel (column 3, lines 29-30).

With respect to the limitations of claims 21 and 23, Baldridge disclose the interlayers being more preferably polyvinylbutyral (PVB) (column 3, lines 49-60).

With further respect to the limitations of claim 16 and a cut-out area being prepared in the plastic ply to receive a circuit board…,positioning the circuit board in the cut out area, in the plastic ply to aid successful lamination of larger components in the glazing panel, Baldridge discloses a cut-out in the plastic ply to aid successful lamination of larger components in the glazing panel (26; column 3, lines 27-29). Since Baldridge discloses the incorporation of a larger component into the plastic ply of a laminated glazing panel by provided a cut-out area for the larger component in the plastic ply, to provide a cut-out area being prepared in the plastic ply to receive a circuit board…,positioning the circuit board in the cut out area would have been a mere engineering expediency as Baldridge clearly teaches the use cut-out in the plastic ply to aid successful lamination of larger components in the glazing panel.

Baldridge discloses all of the limitations of the claimed invention, as previously set forth, except for the lights being light emitting diodes and light emitting diodes being mounted on a circuit board.

However, indicator light emitting diodes mounted on circuit boards is known in the art. Naruke et al., for example, teach a light body comprising light emitting elements (5) mounted on a circuit board (6; a circuit board inherently has a substrate and a conductive layer; Abstract) residing in a body of synthetic resin (synthetic resin predominantly being of the plastics family). Naruke et al. further teach the advantage of using such a configuration provides (1) a reduction in the power consumption of traditional lamp elements, thereby increasing the prolonged life of a power source (column 5, lines 44-47); and (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface, thereby reducing the overall cost of manufacturing (column 5, lines 51-59). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify indicator lights of Baldridge with the light emitting diodes mounted on circuit boards of Naruke et al. to provide (1) a reduction in the power consumption of traditional lamp elements, thereby increasing the prolonged life of a power source; and (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface, thereby reducing the overall cost of manufacturing.

With respect to the limitation of claims 1 and 16 and the glass plies and the plastic ply with the one or more light emitting diodes being laminated at a temperature of about 100°C to 150°C", Baldridge explicitly discloses the glass panels with the interlayer

and instruments being laminated and heated to a temperature of 200°F – 325°F (93.33°C – 162.78°C). Clearly, Baldridge discloses a temperature of lamination that meets the limitations as set forth above. Naruke et al. teach the utilization a light body comprising light emitting elements (5) mounted on a circuit board (6; a circuit board inherently has a substrate and a conductive layer) residing in a body of synthetic resin (synthetic resin predominantly being of the plastics family), Naruke et al. further teach the advantage of such a configuration as being to provide (1) a reduction in the power consumption of traditional lamp elements, thereby increasing the prolonged life of a power source; and (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface, thereby reducing the overall cost of manufacturing. Therefore since Baldridge discloses an laminated glazing panel and method of production for a vehicle window in the recited temperature range and Naruke et al. teach the utilization of light emitting elements mounted on a circuit board and motivation to combine, Baldridge in view of Naruke et al. fully meets “wherein the glass plies and the plastic ply with the one or more light emitting diodes are laminated at a temperature of at least 100°C” given its broadest reasonable interpretation.

In addition, regarding the last two lines of claim 1 and lines 4-6 of claim 30 (describing how the laminated glazing panel is made, i.e. laminated at a temperature of about 100°C to 150°C), the limitation merely recites a product by process limitation. It is well settled that reciting how a product is made does not further limit the structure of the product itself. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The

patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted.)

With respect to the limitations of claims 24 and 26, Baldridge clearly discloses the glass panels with the interlayer and instruments being laminated and heated to a temperature of 200°F – 325°F (93.33°C – 162.78°C) at a pressure of 150 to 225 p.s.i. (10.2 – 15.31 atmosphere). Naruke et al. teach the utilization a light body comprising light emitting elements (5) mounted on a circuit board (6; a circuit board inherently has a substrate and a conductive layer) residing in a body of synthetic resin (synthetic resin predominantly being of the plastics family), Naruke et al. further teach the advantage of such a configuration as being to provide (1) a reduction in the power consumption of traditional lamp elements, thereby increasing the prolonged life of a power source; and (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface, thereby reducing the overall cost of manufacturing. Therefore since Baldridge discloses an laminated glazing panel and method of production for a vehicle window in the range of pressures recited above and Naruke et al. teach the utilization of light emitting elements mounted on a circuit board and motivation to combine, Baldridge in view of Naruke et al. fully meets “wherein the glass plies and the plastic ply with the one or more light emitting diodes are laminated at a pressure of about 5 to 15 atmospheres” given its broadest reasonable interpretation.

With respect to the limitations of claim 2 and the circuit board being *flexible*, Naruke et al. teach the a plurality of chip-type light emitting elements being mounted on a *flexible* printed circuit board (Abstract).

With respect to the limitation of claim 13, Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the plastic ply having a thickness before lamination of 2 mm or less. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the plastic ply having a thickness before lamination of 2 mm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

With respect to the limitations of claims 14, 27 and 29, Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the thickness of the panel being equal to or less than 8 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the thickness of the panel being 8 mm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

With respect to the limitation of claim 30, Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the thickness of the panel being equal to or less than 8 mm and the light emitting diode device being less than 0.8 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the thickness of the panel being 8 mm or less, since it

has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Furthermore since Baldridge in view of Naruke et al. comprises the laminated light emitting diode device within the window, the light emitting diode device would inherently be less than the laminated glazing panel thickness and it would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the thickness of light emitting diode device being 0.8 mm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

With respect to the limitations of claim 16, and to the degree it can be argued that the prior art of reference combination does not teach a three ply composite plastic ply as recited, the additional rejection is provided as set forth below:

The Baldridge-Naruke laminating glazing panel combination discloses all of the limitations, as previously set forth, except for providing a cut-out area in one plastic ply of a pair of plastic plies and joining a further plastic ply to the paired plastic plies to create a composite ply, Baldridge discloses a cut-out in the plastic ply to aid successful lamination of larger components in the glazing panel (26; column 3, lines 27-29). Baldridge further discloses the plastic inter layer being “interlayers” (column 3, lines 29-31, 49-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a third polyvinylbutyral layer in addition to the two

polyvinylbutyral layers to create a composite ply, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art.

Claims 3-5, 7 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Fraivillig (U.S. Patent No. 6.208.031).

Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the substrate comprising polyimide; the substrate comprising polyester; and the conductive layer being a metal foil which is adhered to the substrate; the flexible circuit board further comprising a rigid layer.

However, flexible circuit boards having a substrate comprising polyimide or polyester, a conductive layer being a metal foil which is adhered to the substrate, and a rigid layer, as described by Fraivillig, is known in the art. Fraivillig teaches a flexible circuit board comprising a conductive foil layer that is adhered to a flexible base film that is typically a polyimide or polyester film (column 1, lines 26-31; column 3, lines 6-10; column 4, lines 22-31) to provide a flexible circuit that is not limited by the typical thickness of traditional dielectric films (column 2, lines 1-4), thereby producing a thinner more desirable a flexible circuit board. Fraivillig further teaches that the flexible circuit board may comprise a rigid layer (the addition of a thermoset would inherently create a harder/rigid layer; column 4, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Baldridge-Naruke

laminating glazing panel combination with the flexible circuit board substrate and conductive layers of Fraivillig to provide a flexible circuit that is not limited by the typical thickness of traditional dielectric films, thereby producing a thinner, more desirable flexible circuit board.

Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Ladd (U.S. Patent No. 2001/0055458).

Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the conductive layer being conductive ink which is in direct contact with the substrate.

However, creating a light emitting display using a conductive ink as the conductive layer, as described by Ladd, is known in the art. Ladd teaches a broad surface (12) of sheet (10) of electrically insulating material having grooves 14 that are filled with a highly electrically conductive ink to provide a display that is uniformly constructed, efficient to manufacture without getting the typical defects, thereby reducing typical scrap costs of manufacturing the display devices. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Baldridge-Naruke laminating glazing panel combination with conductive ink layer of the Ladd light emitting display device to provide a display that is uniformly constructed,

efficient to manufacture without getting the typical defects, thereby reducing typical scrap costs of manufacturing the display devices.

Claims 8, 12, 15, 17, 18, 22, 25 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Leclercq (U.S. Patent No. 4,968,895).

Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the circuit board extending outwardly beyond an edge of the glazing panel to enable connection of the circuit board to a power supply; and the light indicators to be coated with a compatible material of the plastic ply.

However, flexible circuit board extending outwardly beyond an edge of the glazing panel to enable connection of the circuit board to a power supply and the light indicators to be coated with a compatible material of the plastic ply, as described by Leclercq, is known in the art. Leclercq teaches a diode (1) laminated between to glass plies (6) with a plastic ply (5) between. Leclercq also teaches a flexible circuit board (4) having conductors (3) embedded within a layer of plastic (column 2, lines 58-61; see Figure 1) for connecting to a power supply to provide the conductors with the flexibility needed during installation of the diode device, thereby simplifying the manufacturing process. Leclercq further teaches the diode (1) within the laminated glass being coated with a compatible material of the plastic ply within the laminated glass (column 2, lines

46-49) to provide stiffness adequate to avoid any deformation when it is laminated in the glass, thereby increasing the operational longevity of the device. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the flexible circuit board of the Baldridge-Naruke laminating glazing panel combination with the extension from the glass structure to connect to a power supply of Leclercq to provide the conductors with the flexibility needed during installation of the diode device, thereby simplifying the manufacturing process. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to modify the plastic/synthetic resin covering of the light emitting element of Baldridge-Naruke laminating glazing panel combination with the device within the laminated glass being coated with a compatible material of the plastic ply within the laminated glass of Leclercq to provide stiffness adequate to avoid any deformation when it is laminated in the glass, thereby increasing the operational longevity of the device.

With respect to the limitation of claims 12, 15 and 17 and the circuit board and one or more light emitting diodes together being at least partially coated with a material compatible with the material of the plastic ply, Leclercq clearly teaches *a diode* (1) being mounted on a circuit board (4) with the circuit board (4) and diode (1) being placed between two laminated glazing panels (glass sheets 6) with a plastic interlayer in between (see Figures 1, 3). A diode is an electric circuit that allow current to flow in one direction. Leclercq teaches a diode on a circuit board that senses light and Naruke et al. teach a diode on a circuit board that emits light. Leclercq clearly teach the device (with a diode) being placed between two glass sheets (6) and plastic interlayer (5) in between

and laminated together. Leclercq further teaches the diode (1) and the circuit board (4) within the laminated glass being partially coated with a compatible material of the plastic ply within the laminated glass (column 2, lines 46-49; see Figure 1). Figure 1 clearly teaches the diode (1) and the circuit being partially coated with a compatible material of the plastic ply. Therefore, the Baldridge-Naruke combination in view of Leclercq would inherently have the light emitting diode and the circuit board partially coated with a compatible plastic ply.

With respect to the limitations of claim 18, the Baldridge-Naruke-Leclercq process for the production of a laminated glazing panel combination discloses all of the limitations, as previously set forth, except for the overall thickness of the coated circuit board on which one or more light emitting elements are mounted being comparable with the thickness of the plastic ply in which it is positioned. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the overall thickness of the coated circuit board on which one or more light emitting elements are mounted being comparable with the thickness of the plastic ply in which it is positioned, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

With respect to the limitations of claim 22, With respect to the limitations of claims 21 and 23, Baldridge disclose the interlayers being more preferably polyvinylbutyral (PVB) (column 3, lines 49-60).

With respect to the limitations of claim 25, Baldridge clearly discloses the glass panels with the interlayer and instruments being laminated and heated to a temperature

of 200°F – 325°F (93.33°C – 162.78°C) at a pressure of 150 to 225 p.s.i. (10.2 – 15.31 atmosphere). Naruke et al. teach the utilization a light body comprising light emitting elements (5) mounted on a circuit board (6; a circuit board inherently has a substrate and a conductive layer) residing in a body of synthetic resin (synthetic resin predominantly being of the plastics family), Naruke et al. further teach the advantage of such a configuration as being to provide (1) a reduction in the power consumption of traditional lamp elements, thereby increasing the prolonged life of a power source; and (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface, thereby reducing the overall cost of manufacturing. Therefore since Baldridge discloses an laminated glazing panel and method of production for a vehicle window and Naruke et al. teach the utilization of light emitting elements mounted on a circuit board and motivation to combine, Baldridge, in view of Naruke et al. and fully meets "wherein the glass plies and the plastic ply with the one or more light emitting diodes are laminated/performed at a pressure of at least 5 atmospheres" given its broadest reasonable interpretation.

With respect to the limitations of claim 28, the Baldridge-Naruke-Leclercq laminating glazing panel combination discloses all of the limitations, as previously set forth, except for the thickness of the panel being equal to or less than 8 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the thickness of the panel being 8 mm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Claim 31 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Baldridge (U.S. Patent No. 3,317,906) in view of Naruke et al. (U.S. Patent No. 5,193,895) as applied to claims 1, 2, 9-11, 13, 14, 16, 19, 21, 23, 24, 26, 27, 29, 30 and 32 above, and further in view of Solow (U.S. Patent No. 4,761,720).

Baldridge in view of Naruke et al. discloses all of the limitations, as previously set forth, except for the thickness of the light emitting diode device being less than thickness of the plastic ply.

However, a thickness of the light emitting diode device being less than thickness of the plastic ply is known in the art. Solow, for example, teaches a plurality of LED chips and connecting wires being embedded in plastic (Abstract) with the thickness of the plastic being slightly greater than the LED chip (column 3, lines 33-52). Solow further teaches the advantage of such a configuration provides a quite thin a flexible product that is waterproof and safe, thereby increasing the operational longevity of the LED device. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Baldridge in view of Naruke et al. with the LED chip being completely embedded in plastic with the thickness of the light emitting diode device being less than thickness of the plastic ply in order to provide a quite thin a flexible product that is waterproof and safe, thereby increasing the operational longevity of the LED device.

(10) Response to Argument

Independent Claim 1 and Dependent Claims 2, 10, 11 and 13

With respect to appellant' reply/argument that the facts do not support a conclusion of obviousness, the examiner respectively disagrees. The examiner has determined the scope of and content of the prior art as set forth in MPEP § 2141 in that "Baldridge discloses a laminated glazing panel and process for the production thereof comprising two glass plies, a plastic ply and one or more lights which are laminated between the glass plies (column 2, lines 16-39, column 3, lines 7-51; see Figure 1) with the lamination occurring at a temperature of 200°F – 325°F (93.33°C – 162.78°C)". In addition, the examiner has ascertained the differences between the prior art in that "Baldridge discloses all of the limitations of the claimed invention, as previously set forth, except for the lights being light emitting diodes and light emitting diodes being mounted on a circuit board". And furthermore, the examiner has resolved the level of one of ordinary skill in utilizing at least the exemplary rationales of at least "Simple substitution of one known element for another to obtain predictable results" and "Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention" (see MPEP § 2143). Therefore, the examiner deems that a *prima facie* case of obviousness has been established and set forth in outstanding Office action.

With respect to appellant's reply/argument that no one of ordinary skill in that art would look to Naruke et al. and the strip-mounted light emitting diode warming system in an automobile/vehicle door and apply such a teaching to a laminated glazing panel in an automobile having a light indicator system, the examiner respectfully disagrees. Both prior art references teach and suggest *indicator means (lights)* for use in *automobile applications*.

Baldridge, as set forth above, is related to *an automobile* laminated glass panels *having electrically operated instrument indicator means* (lights 12a, 12b, 14, 16; column 2, lines 23-26; column 4, claim 2) embedded in the interlayer (Title). In addition, Baldridge discloses lights (12a, 12b, 14, 16) being activated by a remote source of power via wires (20) and even though the lights (12a, 12b, 14, 16) are small enough to be between the glass panels and within the transparent plastic interlayer, there is no explicit disclosure to the structure or size of the lights (i.e. light bulb or LED).

Naruke et al., as set forth above, is *a warning light system for an automobile*. In addition, Naruke et al. teach that previous illuminating applications, in a vehicle door, utilize a lamp (65) mounted in a large light body (63) (column 1, lines 15-18; see Figure 1). Naruke et al. further teach and suggest the use of an LED/circuit board configuration for space requirement and ease of use (column 1, lines 27-32), as asserted by appellant, and also for (1) a reduction in the power consumption of traditional lamp elements (column 5, lines 44-47) as well as (2) the advantage that a lighting system may conform to the shape and size of the fitting face of the desired surface (column 5,

lines 51-59), as asserted by the examiner. Furthermore, Naruke et al. does recognize that power consumption or shape conforming ability are concerns and problems solved in addition to the space requirement and ease of attachment teachings (column 5, lines 44-59).

Appellant's reply/arguments seem to focus on the different aspects of each prior art reference instead of focusing on whether one of ordinary skill in the art would combine Naruke et al. with Baldridge. While the examiner concedes that Baldridge is silent to the power consumption of the silent light structure, the examiner does not concede that one of ordinary skill in the art would look to improve an electrical device in a number of ways, one being the electrical footprint. Similarly, while the examiner concedes that Baldridge is silent to desire for a flexible nature of a printed circuit board, the examiner again does not concede that one of ordinary skill in the art would look to improve an electrical device in a number of ways, one being the physical design footprint or shape conforming flexibility of the structure. In that regard, Naruke et al. explicitly provides a teaching, suggestion and motivation to apply such a change in the electrical and design footprint (i.e. LED/flexible circuit board instead of traditional lamps utilized in automobile configurations) in a glazing panel of Bainbridge.

Therefore, the examiner asserts that one of ordinary skill in the art would look to Naruke et al. with its teaching of utilizing a structure of chip-type LEDs mounted on a flexible circuit board in an automobile application and apply such usage in a laminated glazing panel utilizing lights interposed between the glass panels in an automobile application for at least the teaching, suggestion and motivation of reducing power

consumption and prolonging life as well as the shape conforming ability to that of a workpiece. In addition, the examiner asserts that the substitution of one known element (indicator means with chip-type LEDs on a circuit board as shown in Naruke et al.) for another (indicator means with lights and respective connectors as shown in Baldridge) would have been obvious to one of ordinary skill in the art at the time of the invention since the substitution of the indicator means shown in Naruke et al. would have yielded predictable results, namely, an indications means within the glazing panel in Baldridge to reduce power consumption, prolong life and provide flexibility and conforming of the indicator means to the shape and size of the glazing panels

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

With respect to appellant's reply/argument that Baldridge's disclosure to laminated the indicating elements in a temperature range of 200°F – 325°F (93.33°C – 162.78°C) exceeds the maximum operating temperature range set forth in the light emitting diode specification provided by appellant and the implication that such a process would in some way/shape and/or form reduce the operational potential of the light emitting diode, the examiner respectfully disagrees. First, applicant recites "wherein the glass plies and the plastic ply with the one or more light emitting diodes are

laminated at a temperature of about 100°C to 150°C" in claim 1. Baldridge's explicitly discloses laminating the lights (12a, 12b, 14, 16) between the glass plies with interlayers between to a temperature range of 200°F – 325°F (93.33°C – 162.78°C). Appellant has provided the examiner with specification sheets providing evidence to the operating temperatures of the three LED products (see page 12 of Appeal Brief and Evidence Appendix). While the operating temperatures are below the range noted above, as previously asserted by appellant, Kingbright teaches a "Reflow Soldering Temperature" of 260°C for 5 seconds maximum is allowable (see page J-5 in Evidence Appendix). Kingbright further teaches after soldering, allowing the LED to cool down to 50°C before applying outside force (see page 6 of Kingbright) which only teaches the temperature of the LED getting higher than 50°C. (*NOTE: soldering of LED circuitry tends to be done in a reflow oven or such due to less errors being placed into the circuit by manual soldering*). However, Toshiba, provided by appellant, teaches a reflow soldering application utilizing a furnace/oven having an upper and lower heating means in which the temperature of the reflow furnace follows a certain temperature profile as set forth on page 7 of the Toshiba Evidence Appendix (i.e. ramp up to 140-160°C; hold 140-160°C for 2 minutes; ramp up to 240°C; hold 240°C for 10 seconds; ramp down). Similarly, OSRAM teaches a reflow soldering application that follows a temperature profile as set forth on page 8 of the OSRAM Evidence Appendix (i.e. ramp up to 183°C over 2:45 minutes; ramp to peak of 240°C and then back down to 183°C in 70 seconds; ramp down), however, the examiner cannot ascertain the means of which the temperature profile of OSARM is attained from the specification sheet provided. The

temperature of the LEDs and circuitry would be very comparable to the temperature within the reflow oven or soldering device due to the sheer physics involved with respect to heat transfer as well as the time at which the LED and the circuitry are placed in such an environment. Therefore, it is deemed that the LED/circuitry, as set forth by Naruke et al. and evidenced by at least Toshiba and OSRAM, can and may be subjected to temperatures in the range as recited by appellant and as disclosed in Baldridge and not be destroyed or rendered inoperable, as asserted by applicant.

Appellant has cited KSR, which in fact, supports the examiner's position, not appellants', as set forth by the Court. Furthermore, KSR has "identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham (as asserted above). The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit" (see MPEP § 2143). The examiner has provided appellant with a rationale of at least "Simple substitution of one known element for another to obtain predictable results" and "Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention" (see rejections above). Therefore, the examiner has met the standard, as set forth by the Court, in providing a

"reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed" (see Appeal Brief, page 15).

Independent Claim 16

With respect to appellant's reply/argument that the Office action does not explain why such a construction would be desirable, the examiner respectfully disagrees. Baldridge discloses, "The laminated unit is manufactured by interposing an interlayer of organic plastic between a pair of pellucid panels and bonding the resulting assembly together. If the indicator component is relatively thin when compared to the thickness of the plastic interlayer, the component can generally be placed between the plastic interlayer and the glass plate. The high heats utilized during the subsequent bonding operation will cause the indicator to embed in the plastic. *As an alternate method, portions of the plastic interlayer may be cut to provide a recess for the indicator. Another method, which is sometimes desirable, is to laminate the indicator means between two layers of plastic between the two plates of glass*." (column 3, lines 19-30). Baldridge clearly anticipates cutting out a region, placing an indicator in that region and laminating as well placing the indicator between two interlayers of plastic without cutting out a region and laminating. Baldridge further discloses the plastic inter layer being "interlayers" (column 3, lines 29-31, 49-60). The examiner further asserted "It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a third polyvinylbutyral layer in addition to the two polyvinylbutyral layers *to create a composite ply*, since it has been held that mere duplication of

essential working parts of a device involves only routine skill in the art." It is common knowledge and known in the art that creating a duplication of a layer in an apparatus or device where a composite layer of two layers already exist, especially thin layers as disclosed in Baldridge, produces a more rigid structurally sound end product composite layer.

The examiner asserts that it would be obvious to combine the two methods by cutting out a portion of only one of the plastic interlayers and laminating. The examiner further asserts that providing an additional interlayer or plastic in addition to the two existing interlayers or plastic would increase the rigidity and structural integrity of the final laminated structure. Therefore, the examiner maintains that it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a third polyvinylbutyral layer in addition to the two polyvinylbutyral layers to create a composite ply (that would increase the rigidity and structural integrity of the final laminated structure), since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art as such a statement provides explanation to why such a construction would be desirable.

Independent Claim 30 and Dependent Claims 14, 27 and 29

With respect to appellant's reply/argument that that the examiner has not established that it is possible to produce a laminated glazing panel having the claimed thickness with an operational light emitting diode possessing a thickness as claimed, and with the laminated glazing panel being produced under at least the temperature

conditions as supplied in Claim 30, the examiner respectfully disagrees. Baldridge explicitly discloses laminates varying in thickness from 0.010 up to 0.065 inches (i.e. 0.254 up to 1.651 mm). The lights (12a, 12b, 14, 16) would have to be within the range of 0.010 up to 0.065 inches (i.e. 0.254 up to 1.651 mm) or the laminating thereof between two pieces of glass would destroy the lights (12a, 12b, 14, 16). Naruke et al. teach the use of LEDs on a circuit board instead of traditional lighting as set forth above. Therefore, one of ordinary skill in the art would recognize that substituting a LED with circuitry of Naruke et al. for a traditional light in Baldridge would require engineering expediency to make the LED with circuitry to be within the laminate range of thickness 0.010 up to 0.065 inches (i.e. 0.254 up to 1.651 mm) or the laminated glazing panel would not function properly. In addition, the examiner has provided, above, evidence to the light emitting diodes being capable of withstanding the manufacturing conditions under which the claimed and Baldridge laminated glazing panels are manufactured. Therefore, the examiner deems it is possible to produce a laminated glazing panel having the claimed thickness with an operational light emitting diode possessing a thickness as claimed, and with the laminated glazing panel being produced under at least the temperature conditions as supplied in Claim 30 as set forth above.

Dependent Claim 9

With respect to appellant's reply/argument that Baldridge does not disclose indicia on at least one ply, the examiner respectfully disagrees. The examiner directed appellant to column 3, lines 41-60 for the discussion within Baldridge to the forming of

the plastic layers within the glass. Baldridge further discloses turn signal lights (12a, 12b) being in the shape of arrows as well as other lights (14, 16) being in the shape of circles (see Figure 1). Indicia[1] is a distinctive mark. Therefore since Baldridge discloses lights (12a, 12b, 14, 16) having distinctive marks in their respective shape and the lights (12a, 12b, 14, 16) being on a part of at least one ply (interlayer or plastic), Baldridge fully meets "A laminated glazing panel as claimed in claim 1 further comprising indicia on at least one ply" given its broadest reasonable interpretation.

Dependent Claims 24, 26 and 32

With respect to appellants' reply/arguments reiterated for claims 24, 26 and 32, the reply/argument with respect to temperature is addressed in the section set forth above. In addition, Baldridge discloses the temperature, as asserted above, and a pressure of 150 to 225 p.s.i. (10.2 – 15.31 atmospheres) and Naruke teaches the use of LEDs with circuitry instead of traditional lights, therefore, Baldridge in view of Naruke et al. fully meets “the glass plies, the plastic ply and the light emitting diode device are laminated at a pressure of about 5 to 15 atmospheres” given its broadest reasonable interpretation.

Independent Claim 15 and Dependent Claims 8, 18 and 22

With respect to appellants' reply/arguments reiterated for claims 8, 15, 18 and 22, the reply/argument with respect to temperature is addressed in the section set forth

[1] "indicia." Merriam-Webster Online Dictionary. 2009. Merriam-Webster Online. 30 July 2009 <http://www.merriam-

above. In addition, the examiner did not ignore the range recited in claim 15. In the final Office action, the examiner asserted, "regarding the last two lines of claim 1 and lines 4-6 of claim 30 (describing how the laminated glazing panel is made, i.e. laminated at a temperature of about 100°C to 150°C), the limitation merely recites a product by process limitation. The examiner did not ignore any claim limitations. The examiner treated the limitations of claims 1 and 31, as set forth above, as product by process limitations, however, the limitations were addressed in claim 15 with explanation to Baldridge laminating at a temperature range of 200°F – 325°F (93.33°C – 162.78°C).

Dependent Claim 12

In response to appellant's argument that Naruke et al. and Leclercq have different construction and one of ordinary skill in the art would not look to Leclercq to modify Naruke et al., the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

With respect to appellant's reply/argument that there is no disclosure in Leclercq of coating the circuit board as well as the light emitting diode, the examiner respectfully disagrees. Leclercq explicitly teaches a plastic layer coating the photodiode. Leclercq

further teaches the fragile silicon strip (1) being surrounded by a plastic layer sufficiently thick to provide stiffness as well as the conductors (3) being coated with a thinner layer of plastic for flexibility (column 2, lines 46-64; see Figure 1). Therefore, since the fragile silicon strip (1) is surrounded by a plastic layer and the conductors are covered with a thin plastic layer, all of the components on the circuit board (4) (i.e. fragile silicon strip 1 and conductors 3) are covered in a plastic material, Leclercq fully meets “wherein the one or more light emitting diodes and the circuit board together are at least partially coated in a material compatible with the material of the plastic ply" Given its broadest reasonable interpretation.

Dependent Claim 17

With respect to appellants' reply/arguments reiterated for claim 17, the reply/argument is addressed in the section set forth above.

Dependent Claim 25

With respect to appellants' reply/arguments reiterated for claim 25, the reply/argument is addressed in the section set forth above with respect to claims 24, 26 and 32.

Dependent Claim 31

In response to applicant's argument that Solow provides a quite thin flexible product that is waterproof and safe, the fact that applicant has recognized another

advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

The examiner has provided appellant with a *prima facie* case of obviousness as set forth in the MPEP (see MPEP § 2143). The examiner has further provided evidence to the fact LEDS can withstand the harsh and severe conditions under which the laminating procedure is performed as evidenced by the specification sheets of Kingbright and OSRAM provided by appellant. The examiner has provided appellant with sufficient findings of fact and articulated reasons supporting the obviousness determination, again, as set forth in MPEP § 2143. Therefore, the examiner respectfully requests that the current rejections be affirmed and the claims in this application stand rejected as currently set forth.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen J Ralis/
Examiner, Art Unit 3742

Conferees:

/TU B HOANG/
Supervisory Patent Examiner, Art Unit 3742

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Supervisory Patent Examiner, Art Unit 3753

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